

# PATENT SPECIFICATION

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## (54) AN OVEN WITH A MOBILE RAMP

(71) We, LES FILS D'OSCAR BONGARD ET CIE. S.A., of Holtzheim, Bas-Rhin, France, a French Company, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to an oven provided with a doorway having a threshold above floor level, a door for closing and opening the doorway, and a ramp for carriages to run up from floor level to the threshold.

The invention is envisaged as particularly although not exclusively useful in the field of equipment for bakery and pastry cooking, especially hot-air recycling ovens, with baking chambers having doors and ramps.

In such an existing oven the drive of a baking tray carrier carriage is generally effected by means of a device for hook attachment to the upper part of the carriage, or by means of a plate carrying the said carriage.

However, whatever the means of drive, the sealing of the door is difficult to ensure, and a leakage of steam may occur during baking and cause condensation of water in front of the oven and rapid deterioration of the lower part of the said oven.

Furthermore the frequent operations of the door and the repeated sweepings of the door seals on the threshold lead to rapid wear of the said seals and a lack of sealing which can result in unfavourable variations in the atmosphere in the baking chamber. The present invention has the purpose of remedying these drawbacks.

According to the invention an oven provided with a doorway having a threshold above floor level, a door for closing and opening the doorway, and a ramp for carriages to run up from floor level to the threshold, is characterised in that the ramp comprises a vertically displaceable horizontal top part and an inclined part connected to and sloping down from the said top part, guide means are provided for guid-

ing the said top part of the ramp, and there is a hoisting device for raising and lowering the said top part, the hoisting device being actuated by the door to raise the said top part to threshold level as the door swings open and to lower the said top part to provide clearance for the door as the latter swings into its closed position.

Preferably the hoisting device comprises a trolley with wheels and carrying cams, rollers are mounted below the said top part to engage the cams, and there are transmission means whereby motion is transmitted from the door to the trolley so that as the door swings to its open and closed positions the trolley moves to and fro and the cams move below the said rollers to raise and lower the top part of the ramp.

The guide means may conveniently comprise vertical rods secured to the top part of the ramp and projecting into vertical tubes secured to a lower part of an oven base.

How the invention may be put into practice is explained in greater detail hereinafter by reference to a preferred form of embodiment which is illustrated by way of non-limitative example in the accompanying diagrammatic drawings, wherein:—

Figure 1 is a perspective view of some parts of an oven according to the invention, with the oven door open;

Figure 2 is a view analogous with that in Figure 1, the door being closed;

Figure 3 is a view partially in elevation and partially in section showing parts in the open position of the door;

Figure 4 is a plan view corresponding to Figure 3;

Figure 5 is a partial lateral elevation corresponding to Figures 3 and 4, and

Figures 6 to 8 are views analogous with those in Figures 3 to 5, the door being closed.

The illustrated oven has a baking chamber with a doorway and a door 2, and a threshold 14 above floor level. There is a

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ramp for carriages to run up from floor level to the threshold 14. The ramp has a vertically displaceable horizontal top part 3 forming the level part of the ramp, this top part 3 being guided by guide means 4. An inclined part 5 of the ramp may be articulated to the horizontal top part 3 or made in one piece therewith.

A hoisting device 1 comprises a trolley 6 equipped with two wheels 7 and carrying two cams 8. Towards the hinge side of the door 2 the trolley 6 has a right angle bracket 9 equipped with two rotating upstanding rollers 10, 10' (Figures 3, 4, 7 and 8). These rollers 10, 10' co-operate with an appendage 11 provided on the lower part of the door 2.

The guide means 4 comprises two vertical rods fast with the horizontal part 3 of the ramp and projecting into the co-operating with respective vertical guide tubes fixed in a lower part 12 of the oven base. This part 12 is in the form of a U-section channel and serves to guide the trolley 6.

Mounted below the horizontal top part 3 of the ramp are two rollers 13 co-operating with the cams 8 on the trolley 6 in order to raise the said horizontal top part 3 to the level of the threshold 14 of the oven.

On opening of the door 2 the appendage 11 passes in front of the roller 10 and exerts a thrust upon the roller 10' so as to displace the trolley 6 through the intermediary of the right-angle bracket 9. By this displacement the cams 8 move beneath the rollers 13 of the horizontal top part 3, which is held against transverse movement by the device 4, and the top part 3 rises to reach the level of the threshold 14 at the end of the opening movement of the door 2, the rollers 13 then resting on horizontal portions of the cams 8.

When the door 2 is in this open position the trolley 6 is at the end of its travel, and the appendage 11, still bearing against the roller 10', effects locking of the position of the ramp, which permits easy introduction or withdrawal of the baking tray carrier carriages.

During the closing movement of the door 2, the appendage 11 acts upon the roller 10 and pushes back the trolley 6. At the beginning of this movement the rollers 13 depart from the level parts of the cams 8, and under the action of the weight of the movable ramp the trolley 6 moves so as to totally free the rollers 13 and thus permit complete lowering of the mobile ramp for the door 2 to be closed.

Thus it is possible to obtain easy access for baking tray carrier carriages, and yet there is an effective sealed closure when the oven door is closed. For this purpose the door 2 may be provided at its lower part

with a seal 15 which bears against the front part 16 of the threshold 14.

#### WHAT WE CLAIM IS:—

1. An oven provided with a doorway having a threshold (14) above floor level, a door (2) for closing and opening the doorway, and a ramp (3, 5) for carriages to run up from floor level to the threshold (14), characterised in that the ramp (3, 5) comprises a vertically displaceable horizontal top part (3) and an inclined part (5) connected to and sloping down from the said top part (3), guide means (4) are provided for guiding the said top part (3) of the ramp (3, 5), and there is a hoisting device (6—13) for raising and lowering the said top part (3), the hoisting device (6—13) being actuated by the door (2) to raise the said top part (3) to threshold level as the door (2) swings open and to lower the said top part (3) to provide clearance for the door (2) as the latter swings into its closed position.

2. An oven according to Claim 1, wherein the hoisting device comprises a trolley (6) with wheels (7) and carrying cams (8), rollers (13) are mounted below the said top part (3) to engage the cams (8), and there are transmission means whereby motion is transmitted from the door (2) to the trolley (6) so that as the door (2) swings to its open and closed positions the trolley (6) moves to and fro and the cams (8) move below the said rollers (13) to raise and lower the top part (3) of the ramp.

3. An oven according to Claim 2, wherein the said transmission means includes a bracket (9) secured to the trolley (6), upstanding rollers (10, 10') mounted on the said bracket (9), and an appendage (11) on the oven door (2) to engage the upstanding rollers (10, 10').

4. An oven according to Claim 1, 2, or 3, wherein the said guide means (4) comprises vertical rods secured to the top part (3) of the ramp and projecting into vertical tubes secured to a lower part (12) of an oven base.

5. An oven according to Claims 2 and 4, wherein the said lower part (12) of the oven base is of channel form and guides the trolley (6).

6. An oven according to any one of Claims 1 to 5, wherein the inclined part (5) is rigidly connected to the top part (3) of the ramp.

7. An oven according to any one of Claims 1 to 5, wherein the inclined part (5) is articulately connected to the top part (3) of the ramp.

8. An oven with a door and a ramp constructed and arranged substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

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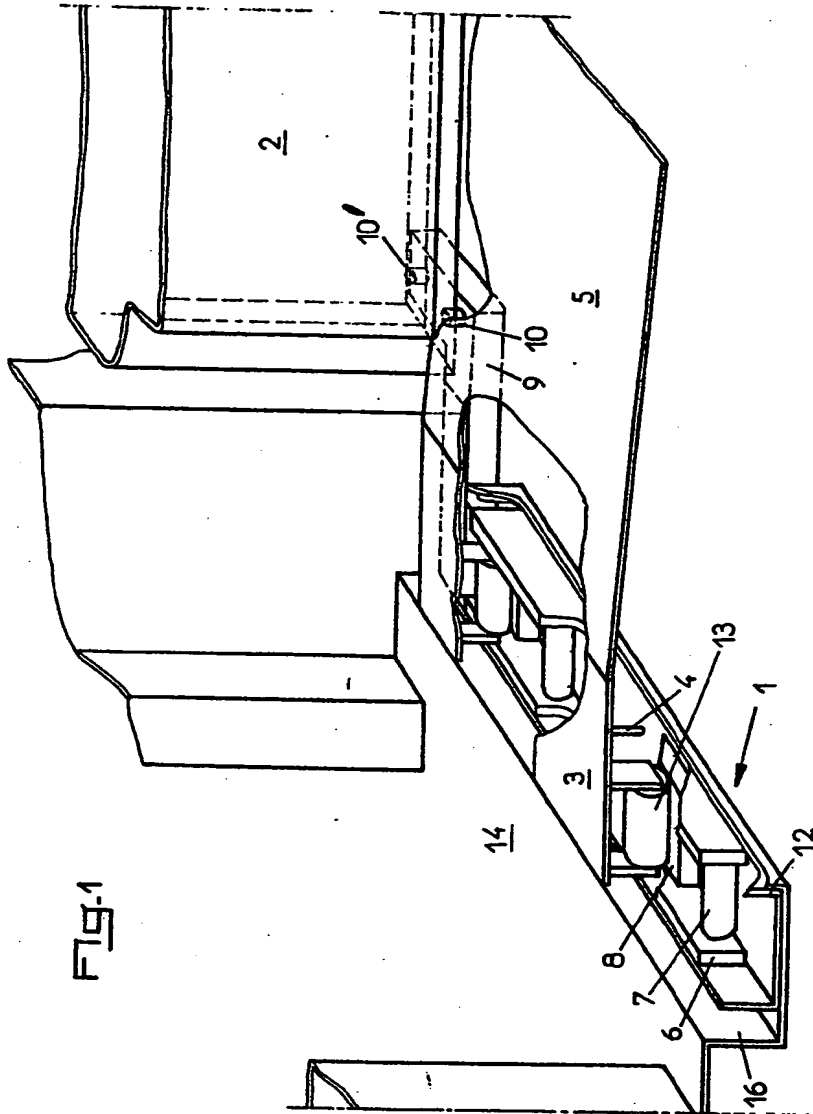
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## COMPLETE SPECIFICATION

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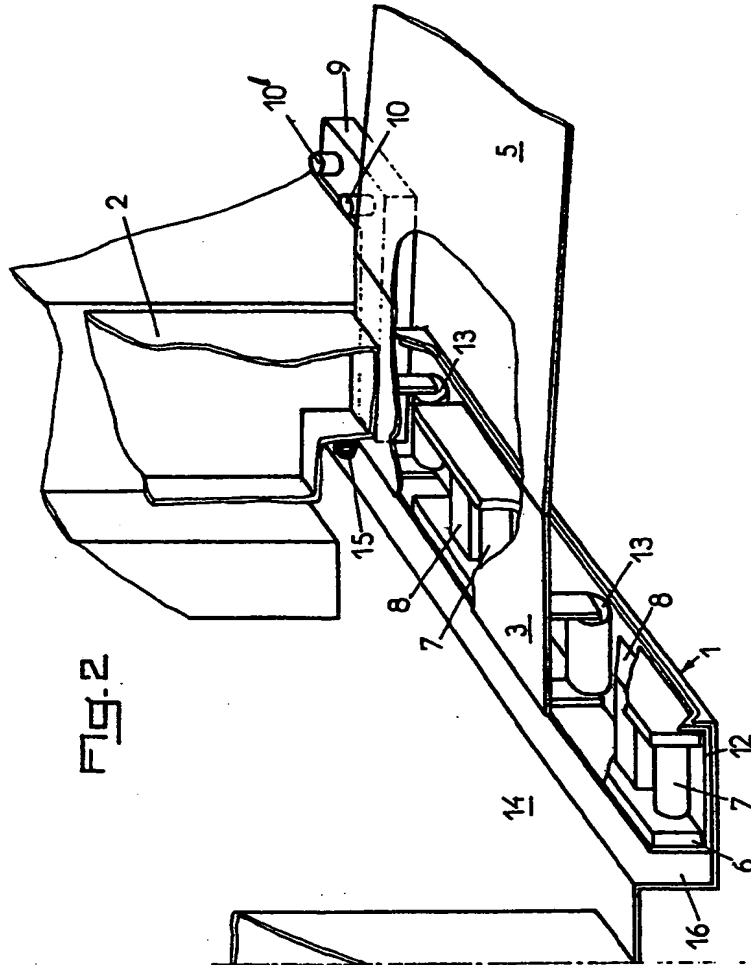


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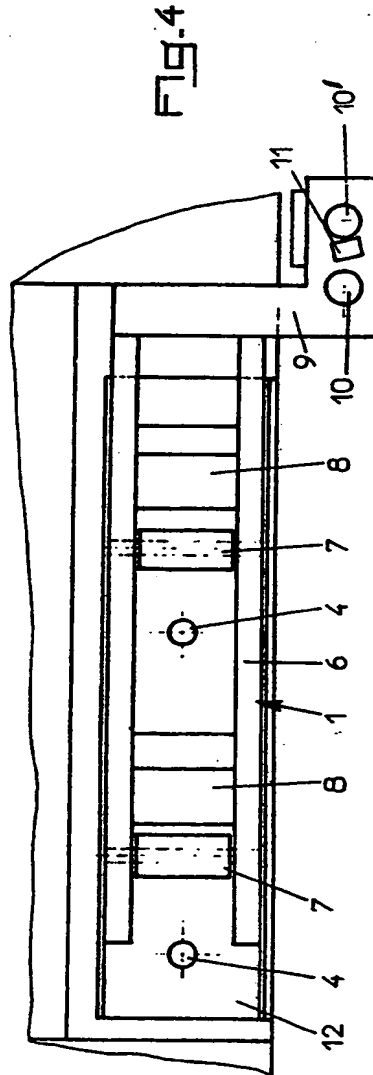
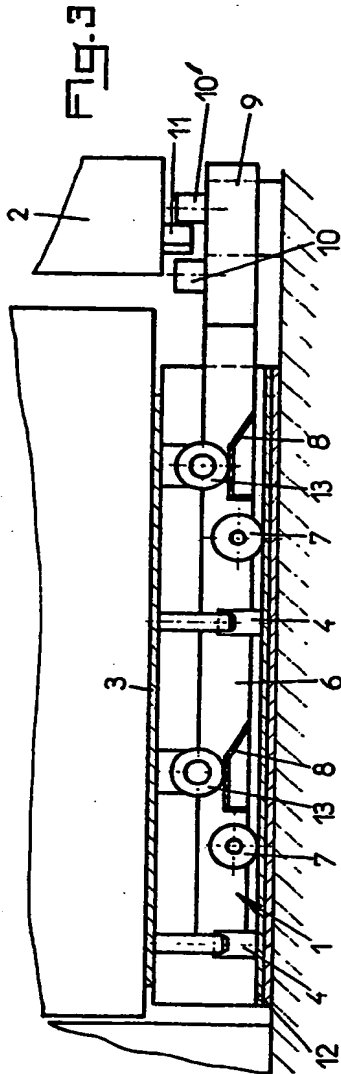


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Fig. 5

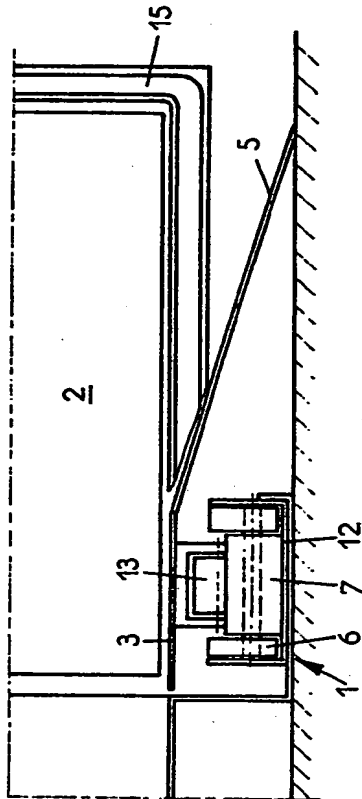
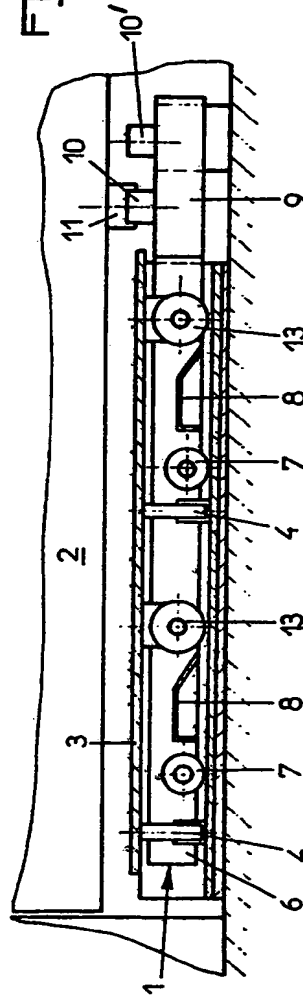


Fig. 6



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FIG. 7

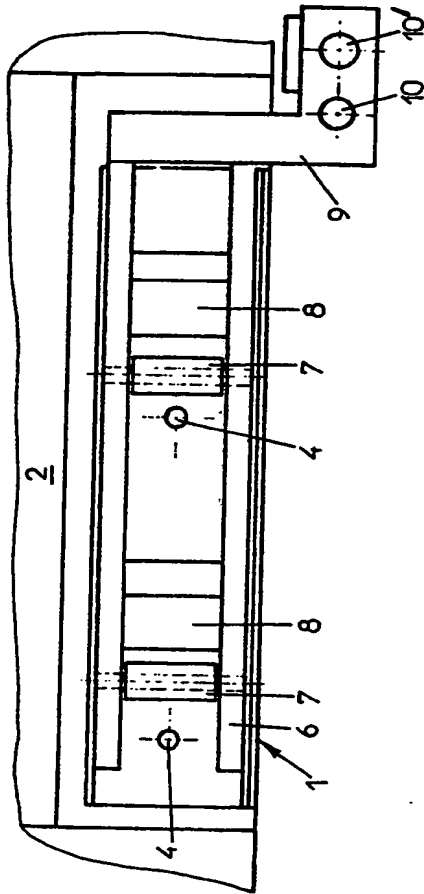


FIG. 8

